A COMPARATIVE STUDY OF THE SCHOLASTIC APTITUDE, SCHOLASTIC ACHIEVEMENT, AND PERSONALITY ADJUSTMENT OF MALE ATHLETES AND MALE NONATHLETES AT KANSAS STATE COLLEGE

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INTRODUCTION

The important part which intercollegiate athletics is playing in the extracurricular activities of colleges and universities today has stimulated much discussion as to the scholastic aptitude, scholastic achievement, and personality traits of the participating individuals.

Opinions have been expressed to the effect that college athletes as a group tend to be inferior in scholastic aptitude and scholastic achievement when compared with college nonathletes, and that athletes possess more than the average number of undesirable personality traits.[1,2,3,4] There are also some people who believe that the athletic program detracts from the academic progress of an educational institution.[5] This is one of the important reasons why a number of colleges and universities in this country have discontinued intercollegiate athletics.

The purpose of this study is to determine whether male athletes at Kansas State College differ from male nonathletes at that institution in any or all of the following respects:

1. Scholastic aptitude as measured by the American Council on Education Psychological Examination for College Freshmen;

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[1] P. A. Witty and C. E. Skinner, et al, Mental Hygiene in Modern Education, p. 262.
[2] C. Basset, Mental Hygiene in the Community, p. 324.
[3] S. R. Slavsin, Creative Group Education, p. 168.
[4] L. Coles, Psychology of Adolescence, p. 29.
[5] Carnegie Foundation for the Advancement of Teaching, Bulletin 23, p. 19.

2. Scholastic achievement as measured by grade point averages;

3. Five personality adjustments as measured by the Minnesota Personality Scale.

For purposes of this study, a male student was classified as an athlete if he had been awarded one or more intercollegiate letters by the Athletic Council of Kansas State College. All other male students were classified as nonathletes.

A COMPARISON OF THE SCHOLASTIC APTITUDE OF MALE ATHLETES WITH THAT OF MALE NONATHLETES AS SHOWN BY THE SCORES OF THE TWO GROUPS ON THE AMERICAN COUNCIL ON EDUCATION PSYCHOLOGICAL EXAMINATION FOR COLLEGE FRESHMEN

Review of Literature

One of the thorough studies comparing the scholastic aptitude of athletes and nonathletes was that carried on by the Carnegie Foundation for the Advancement of Teaching.[1] Under the auspices of the Association of College Presidents of Pennsylvania, the Carnegie Foundation administered a specially devised test of 3,500 questions, consuming eight working hours, to 1,630 men at 13 colleges, universities, and normal schools.

The average score made on this test by 290 athletes was 636.37, while 1,340 nonathletes scored an average of 615.55 points. The report states that this difference was not significant from a statistical point of view.

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[1] Howard J. Savage, "College Athletics and Scholarship," pp. 49-65.

Dr. Abraham P. Sperling compared the American Council on Education Psychological Examination for College Freshmen scores of 171 male athletes and 126 male nonathletes at the College of the City of New York.[1] He found the mean for the nonathlete group to be at the 74th percentile, while the mean for the athletes was at the 68th percentile. No other statistical data pertaining to the comparison of scores were published.

Vern W. Ruble found, in a study at Indiana University in 1928, that a close relationship existed between intelligence and athletic success.[2] The following table, taken from the Ruble study, shows the median percentile ratings made on the Thurstone Intelligence Test IV by all male freshman and new men students who entered Indiana University in the four years immediately preceding the study. It also shows the median percentile ratings of the men students belonging to this group who participated with greater or less success in athletics as indicated by "letters" and "numerals."

It is regrettable that a more thorough statistical study was not made.

In a study of 327 men in three classes at the College of Wooster, Ohio, in 1924, Martin Remp found that varsity athletes "have higher scores on Army Alpha at all levels of ability. Football men are not as good as other varsity men, but are better

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[1] A. B. Sperling, "The Relationship between Personality Adjustment and Achievement in Physical Education Activities," pp. 362-371.

[2] Vern Ruble, "A Psychological Study of Athletes," pp. 219-234.

Table 1. Median percentile ratings on intelligence tests of athletes at Indiana University compared with men students generally.

Group	Rating	Cases
1926-27 Numeral men, two or more sports	57.2	20
Numeral men with one or more letters	52.5	62
Numeral men in two or more sports	50.50	50
All freshmen and new students	47.34	2303
Numeral men in one sport only	46.73	275
Numeral men failing to earn letters	43.89	140

than nonathletes."[1]

Howard J. Savage, in a study of 337 nonathletes and 86 athletes at Columbia University in 1927, found that "the average scores of the two groups on the Thorndike Intelligence Examination for High School Graduates were as follow: nonathletes, 79.01; athletes, 77.74."[2] Savage did not regard the difference of 1.27 as significant.

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Procedure

Personnel Studied. The American Council on Education Psychological Examination for College Freshmen scores of 110 athletes and 249 nonathletes were compared. The same form of the examination was used in obtaining all the scores. The athlete group included all men awarded letters during the period covered by the study. The nonathletic group was made up of men selected by random sampling. The random sample scores were secured from an alphabetical list of all those men taking the test in 1947. Every third man, excluding athletes, was selected until 249 cases were secured.

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[1] Martin Remp, "A Comparison of the Scholastic Records of Athletes and Non-athletes," American Physical Education Review, 30: 187-192, April, 1925.

[2] Howard J. Savage, loc. cit.

Description of Test. The American Council on Education Psychological Examination for College Freshmen was prepared by L. L. Thurstone and Thelma Gwinn Thurstone. The purpose of this test is to appraise what has been called scholastic aptitude, or general intelligence, with special reference to the requirements of most college curricula. The examination consists of six tests; three are quantitative, measuring arithmetical reasoning, number series, and figure analogy; the other three are linguistic, measuring same-opposite, completion, and verbal analogy.[1]

Source of Scores Obtained. The scores used in this study were obtained from the records of the Kansas State College Counseling Bureau.

Statistical Analysis of Data. The mean scores, standard deviations, difference between the means, standard error of the difference between the means, significance ratio, and level of confidence were calculated. These computations were made to test the null hypothesis in the comparison of these two groups. In this comparison, the numbers of cases in the two groups were of such magnitude that the degrees of freedom were regarded as infinite. This fact was used in determining the level of confidence from tables provided for that purpose.[1]

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[1] "Manual of Instructions, "American Council on Education Psychological Examination for College Freshmen.

Results

The results of the statistical analysis of data obtained from the comparison of scores made on the American Council on Education Psychological Examination for College Freshmen by the 110 athletes and 249 nonathletes included in the study are shown in Table 2.

The data show that the nonathletes made a higher average score on the American Council on Education Psychological Examination for College Freshmen than the athletes. However, they excelled by only a 3.1 point average. The table shows that the significance ratio is 1.11. Reference to the table mentioned above shows that in order for the null hypothesis to be rejected on even a 5 per cent level of confidence, the significance ratio must be 1.96 or greater.[2] Therefore, the significance ratio is not high enough in this case to reject the null hypothesis.

Conclusion

The data do not indicate any reliable difference in scholastic aptitude between college athletes and nonathletes as measured by the American Council on Education Psychological Examina-

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[1] E. F. Lindquist, _A First Course in Statistics_, p. 240.
[2] E. F. Lindquist, _loc. cit._

Table 2. Results of statistical analysis of the scholastic aptitude of male athletes compared with that of male nonathletes as shown by the scores made by the two groups on the American Council on Education Psychological Examination for College Freshmen.

Mean score		Standard deviation		Number of cases		Difference between the means	Standard error of the difference between the means	Significance ratio	Level of confidence
N-A*	A**	N-A	A	N-A	A				
99.3	96.2	24.18	24.37	249	110	3.1	2.79	1.11	---

* N-A is Nonathlete

** A is Athlete

tion for College Freshmen.

A COMPARISON OF THE SCHOLASTIC ACHIEVEMENT OF ATHLETES WITH THE SCHOLASTIC ACHIEVEMENT OF NONATHLETES, AS MEASURED BY GRADE POINT AVERAGES

Review of Literature

A Carnegie Foundation for the Advancement of Teaching questionnaire poll of university presidents reported a majority as believing that athletes are naturally disinclined to study, and that men in training show a falling off in scholarship.[1]

A special committee of the Harvard faculty investigated the scholastic records of 1,600 upper classmen, 346 of whom were participants in "one or more of the major athletic sports."[2] Their findings were typical of the results of studies based on data rather than opinion. They reported:

> The active players make a measurably good showing, not up to the average, it is true, but high enough to refute the generalization that participation in major athletics is incompatible with the doing of satisfactory classroom work. The percentile of high standing scholars is small, however, and leads to the suggestion that, while an active interest in intercollegiate sports does not render a young man's education unsatisfactory, it does on the whole, tend to prevent his rising to the top portion of the class in point of scholarship.

Davis and Cobane, at the University of Michigan, investigated the scholastic records and choice of courses of athletes at that school.[1] They concluded:

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[1] Carnegie Foundation for the Advancement of Teaching, Bulletin 23, loc. cit.

[2] "Athletics and Scholarship," Harvard Graduate Magazine, pp. 588-590.

> College athletes distribute their academic work in a well balanced manner over all fields of liberal studies....(they) like other types of students, tend to specialize in studies that suit their particular needs, but neither over-specialize nor over-distribute their efforts.
>
> College athletes are not electing "easy" courses because they are easy, but pursue well defined and well selected groups of studies of normal difficulty and practicability.

Ray Finlay, in a McGill University study in 1926, combined results of studies of scholarship of athletes at McGill with the results of similar studies at Harvard, the University of Michigan, Pennsylvania State College, and the University of Wisconsin.[2] Finlay's conclusions were:

> A larger percent of athletes completed their courses than nonathletes, the difference being--
>
> Athletes 61.25%
> Nonathletes 41.10%
>
> Fewer athletes failed or withdrew during their first or second year than nonathletes.

1st Year	Athletes	13.75%
	Nonathletes	34.10%
2nd Year	Athletes	12.50%
	Nonathletes	14.80%

> Athletes averaged slightly higher than nonathletes, while football players rated lower than nonathletes.
>
> Athletes, average grade 65.90%
> Nonathletes, average grade 64.07%
> Football players, average grade .. 62.90%

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[1] Calvin Davis and J. F. McCann, "Subjects Pursued by Winners of the 'M' in All Subjects at the University of Michigan," Educational Administration, 4: 233-236, April, 1928.

[2] Ray Finlay, "The Comparative Academic Standings of Athletes and Nonathletes," (typewritten thesis).

> There was a greater percentage of "A" men scholastically in the athletic group than there was in the nonathletic group, while the percentage of "As" in the football group was slightly lower.

	A	B	C
Athletes	7.14	46.43	46.43
Nonathletes	6.71	54.93	38.36
Football players	5.88	47.06	47.06

In the 22nd annual report of the Carnegie Foundation for the Advancement of Teaching, detailed studies of 2,787 athletes and 11,400 nonathletes in 52 representative colleges and universities in the United States were reported.[1] The studies indicated that:

> The scholastic grades of athletes seem to average slightly lower than those of nonathletes, but the ascertainable difference in favor of the nonathletes is so slight as to possess no statistical significance.
>
> Athletes average higher grades during the first college year, nonathletes during the remainder of the course. The condition works out much as the number of program hours carried. For both groups, grades improve consistently in successive years; the grades of nonathletes are appreciably better in the fourth year than in any previous year for either athletes or nonathletes.

In a study of 377 athletes at the University of Iowa during a five-year-period from 1935 to 1940, the grade point averages of letter winners were compared with the grade point averages of all undergraduate men in the Liberal Arts and Commerce curricula for the same five-year-period.[2]

The undergraduate men's average for 1935 to 1936 was omitted because the available figures included graduate student grades, and were, therefore, not comparable. The comparisons for the other years are shown in Table 3.

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[1] Howard J. Savage and staff, "American College Athletics," pp. 123-125.

[2] W. W. Tuttle and R. J. Beebee, "A Study of the Scholastic Attainments of Letter Winners at the State University of Iowa," pp. 174-180.

Table 3. A study of scholastic attainments of letter winners at the State University of Iowa.

Year	Liberal arts-commerce Average	Varsity letter winner Average	Difference
1935-36	....	1.10	....
1936-37	1.24	1.11	-.13
1937-38	1.22	1.16	-.06
1938-39	1.23	1.24	.01
1939-40	1.22	1.20	-.02

It is regrettable that a more thorough statistical study was not made so that the significance ratio could be determined.

From the results of a study of the class of 1925 at Columbia University, Howard J. Savage reported the following data in regard to scholastic comparison of athletes and nonathletes:[1]

> Although the athletes and the nonathletes may be regarded as of practically the same level of intelligence, the nonathletes averaged C+ in their course grades, whereas the athletes averaged C. This difference in average scholarship is small; but the likelihood that it has some significance is enhanced by the fact that such scholarship differences as are found are favorable to the nonathletes in nine out of ten semesters.
>
> As to "hard" and "easy" courses (the definition of an "easy" course being one in which a high proportion of the students who took it received higher grades than their average for all courses they took that semester), the athletes averaged about C- in the "hard" courses and barely B in the "easy" courses, while the nonathletes averaged C+ in the hard courses and a slightly better B in the "easy." Athletes seemed on the whole to be closer to the passing line; they received more marks of C- than the nonathletes in nine out of fourteen courses considered, and more marks of C in every course.

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[1] Howard J. Savage, "College Athletics and Scholarship," Carnegie Foundation for the Advancement of Teaching, 22nd Annual Report, 1927, pp. 43-50.

Procedure

Personnel Studied. The scholastic achievement, as measured by grade point averages, of 100 sophomore nonathletes was compared with that of 31 sophomore athletes; the same comparison was made for 100 junior nonathletes and 34 junior athletes; the process was repeated with 100 senior nonathletes and 36 senior athletes. The athlete groups used in this section of the study included all men awarded varsity letters between September, 1946, and March, 1949, excluding those who transferred to another college. The nonathlete groups were made up of men selected by random sampling. The random sample sources were obtained from an alphabetical list of all male students in each class. Every third man, excluding athletes, was selected until 100 cases were secured for each class.

Source of Data. The grades of athletes and nonathletes used in this study were obtained from the office of the registrar of Kansas State College.

Method Used to Determine Grade Point Averages. The following method was employed in determining the grade point averages for each student included in this study. Letter grades were given numerical values, as shown in Table 4. These values were multiplied by the number of credit hours received with each letter grade. The total number of hours was divided into the total number of grade points, determining the grade point average.

Table 4. Values given letter grades in determining grade point averages.

Grade	Points per semester hour
A	3
B	2
C	1
D	0
E	-1

Statistical Analysis of Data. The mean scores, standard deviations, difference between the means, standard error of the difference between the means, significance ratio, and level of confidence were calculated from grade averages of sophomore athletes and the sophomore nonathletes for the fall semesters of both the freshman and sophomore years. These computations were made to test the null hypothesis in the comparison of the two groups. In this comparison the number of cases in the two groups were of such magnitude that the degrees of freedom were regarded as infinite. This fact was used in determining the level of confidence from tables provided for that purpose.[1] The same procedure was followed in comparing scholarship of sophomore athletes and sophomore nonathletes for the spring semesters; the procedure was repeated in the comparisons of junior athletes and junior nonathletes in the fall and spring semesters except that grade averages for three semesters were included in each case; likewise senior athletes and senior nonathletes were compared for the fall and spring semesters in which case grade averages for four semesters were included in each comparison.

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[1] E. F. Lindquist, loc. cit.

Results

The results of the statistical analysis of the grade point averages of 100 athletes and those of 300 nonathletes included in the study are shown in Table 5.

The data show that the athletes made the higher grade point average in both semesters of the sophomore year and in the combined fall semesters; however, the significance ratio was too small to reject the null hypothesis in any of these cases. In all other comparisons, the nonathletes had higher grade point averages; in this case, the significance ratios were large enough to reject the null hypothesis in only the junior spring semester and the combined spring semester comparisons.

Conclusions

The data indicate that the nonathletes had a slight but reliable advantage over the athletes in the junior spring semester grade point averages and in the combined spring semester grade point averages.

The following additional comparisons were made, but none of the differences was great enough to be statistically reliable. The athletes had a slightly higher mean grade point average in each semester of the sophomore year and in the combined fall semesters, while the nonathletes' mean grade point average was

Table 6. Results of statistical analysis of the data obtained from the comparison of the grade point averages for accumulative spring and fall semesters of the sophomore, junior, and senior years made by the personnel included in this study.

Class	Semester	Mean grade point average		Standard deviation		Number of cases		Difference between the means
		N-A*	A**	N-A	A	N-A	A	
Sophomore	Fall	.98	1.18	.80	.52	100	31	.20
Junior	Fall	1.46	1.37	.65	.49	100	34	.09
Senior	Fall	1.53	1.64	.58	.44	100	38	.11
Combined	Fall	1.37	1.36	.59	.54	300	103	.01
Sophomore	Spring	1.08	1.06	.76	.46	100	31	.16
Junior	Spring	1.31	1.56	.57	.56	100	34	.26
Senior	Spring	1.69	1.50	.59	.55	100	38	.19
Combined	Spring	1.42	1.59	.70	.51	300	103	.17
Combined spring and fall		1.38	1.33	.66	.48	300	103	.05

Class	Semester	Standard error of the difference between the means	Significance ratio	Level of confidence
Sophomore	Fall	.124	1.61	---
Junior	Fall	.102	.88	---
Senior	Fall	.094	1.17	---
Combined	Fall	.080	.50	---
Sophomore	Spring	.114	1.40	---
Junior	Spring	.113	2.30	5%
Senior	Spring	.104	1.83	---
Combined	Spring	.029	6.00	0.1%
Combined spring and fall		.060	.83	---

* Nonathletes ** Athletes

superior to the athletes' in the junior fall semester, both semesters of the senior year, the combined spring and the combined spring and fall semesters. It is to be noted that there were no statistically reliable differences between the grade point averages in the comparisons of the fall semesters.

COMPARISON OF ATHLETES WITH NONATHLETES IN EACH OF FIVE PERSONALITY ADJUSTMENTS AS MEASURED BY THE MINNESOTA PERSONALITY SCALE

Review of Literature

A review of literature pertaining to personality adjustments of athletes in comparison with those of nonathletes uncovered a wealth of theoretical discussion by physical educators, psychologists, and sociologists as to the status of the college athlete in this respect. A general opinion that participation in athletics makes for more wholesome personalities was found to exist among certain educators and mental hygienists. Statements to this effect are made by Heaton,[1] Groves and Blanchard,[2] Voltmer and Esslinger,[3] Lloyd,[4] Watson,[5] and others too numerous to include here. At the same time, there are opinions expressed in the literature which question the influence of athletics in the development of wholesome personality. These views are contained in books by Witty and Skinner,[1] Basset,[2] Slavsin,[3] and Cole.[4]

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[1] K. L. Heaton, *Character Building Through Recreation*, p. 127.

[2] E. R. Groves and P. Blanchard, *Introduction to Mental Hygiene*, pp. 290-291.

[3] E. Voltmer and A. Esslinger, *The Organization and Administration of Physical Education*, p. 69.

[4] F. Lloyd, *Interpretations of Physical Education*, V.I, p.170.

[5] G. B. Watson, *Personality Growth Through Athletics*, p. 408.

Despite these long standing differences of opinion, this investigator could find only one study of an objective nature which might be used to substantiate the assertations of either group. Dr. A. P. Sperling of the College of the City of New York used a battery of personality tests to compare the personality traits of 171 varsity athletes with those of 126 nonathletes, obtaining the following results:[5]

> Statistically reliable differences were found in the personality patterns of varsity athletes and those of the nonathletic group....In personality adjustment scores, ascendance, and extroversion the athletic group proved to be reliably superior to the nonathletic group....In attitude, the nonathletic group was found to be more liberal minded that the athletic group, but the differences were not great enough to be statistically significant....In interests or motivational values the athletes were shown to be significantly more motivated by desires for power and to a lesser extent by a social love of people....The nonathletic group was indicated to be more aesthetically and theoretically minded.

Procedure

Personnel Studied. The mean scores of 41 athletes from the sophomore, junior, and senior classes were compared with the mean scores of 113 nonathletes from the same three classes in each of five fields of personality adjustment as measured by the Minnesota Personality Scale. There were 41 men who met these conditions.

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[1] P. A. Witty and C. E. Skinner, et al., loc. cit.
[2] C. Basset, loc. cit.
[3] S. R. Slavsin, loc. cit.
[4] L. Cole, loc. cit.
[5] Dr. Abraham P. Sperling, loc. cit.

The nonathletes were made up of men selected by random sampling. The random sample scores were obtained from an alphabetical list of all those men taking the scale in 1947. Every third man, excluding athletes, was selected until 115 cases were secured.

Description of the Scale. A general adjustment score can be obtained from the Minnesota Personality Scale, prepared by John G. Darley of the University of Minnesota and Walter J. McNamara of the International Business Machines Corporation. The Psychological Corporation copyrighted the test in 1941. Five areas of adjustment are measured by the test; they are (a) morale, (b) social adjustment, (c) family relations, (d) emotionality, and (e) economic conservatism.

In the morale section, high scores indicate a sound belief in the institutions and future possibilities of society, wholesome attitudes toward the legal and education systems, and good general adjustment. Low scores show cynicism or lack of hope in the future. Low scores in this area may indicate depression with lack of hope for the self and little happiness. Excessively high scores may represent naivete and uncritical acceptance of society.

High scores on social adjustment seem to be characteristic of the person who is gregarious and socially mature in relations with other people, while low scores point out the socially inept or undersocialized. A person having a low score might show retiringness--lack of social "sure-footedness" and lack of emotional stability in social situations. Excessively high scores may indicate oversocialization or extreme extroversion.

The family relations scale shows friendly and healthy parent-child relations in the case of high scores, while low scores suggest conflicts or maladjustments in the relations. Extremely high scores may be significant in showing unrecognizable over-dependence on the family at an age when some independence is to be expected.

In the tests of emotionality, high scores indicate the stable, self-possessed individual, while low scores may result from anxiety states or over-reactive tendencies. Excessively high scores show manic or hyperactive tendencies.

Economic conservatism is a test of attitudes toward our economic system. High scores indicate conservatism, while low scores show a tendency toward liberal or radical view points on current economic and industrial problems. Again, excessively high scores may signify naivete or blind acceptance of things as people say they are or reactionary view points that might exclude absorption of new material in some of the social sciences.

Sources of Data. The scores made on the Minnesota Personality Scale which were used in this study were obtained from the Counseling Bureau records at Kansas State College.

Statistical Analysis of Data. The mean scores, standard deviations, difference between the means, standard error of the difference between the means, significance ratio, and level of confidence were calculated from scores made by athletes and non-athletes in the morale field of adjustment. These computations were made to test the null hypothesis in the comparison of the two groups. In this comparison the numbers of cases in the two groups were of such magnitude that the degrees of freedom were regarded as infinite. This fact was used in determining the level of confidence from tables provided for that purpose.[1] The same analysis of data was made to compare the results for athletes and nonathletes in each of the other four fields of adjustment measured by this scale.

Mean raw scores were changed from the machine scoring norm for men, as set forth in the Manual of Directions, to percentile ranks. This was done in order to make possible easier interpretation of the results.

Results

The results of the statistical analysis of data obtained from the comparison of raw scores made on each of the tests of the five fields of adjustment measured by the Minnesota Personality Scale by 41 athletes and 113 nonathletes included in the study are shown in Table 6.

As shown in Table 6, the nonathletes had a higher mean raw score than the athletes in the morale field of adjustment. The significance ratio on this test was high enough to reject the null hypothesis on the 0.1 per cent level of confidence.

Likewise, in the field of social adjustment the nonathletes had a higher mean raw score than the athletes. However, the sig-

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[1] E. F. Lindquist, *loc. cit.*

Table 6. Results of statistical analysis of the data obtained from the comparison of the raw scores in each of the five fields of adjustment measured by the Minnesota Personality Scale made by 41 athletes and 113 nonathletes.

Field of adjustment	Raw scores		Percentile ranks		Standard deviation		Number of cases	
	N-A*	A**	N-A	A	N-A	A	N-A	A
Morale	171.57	162.60	62.15	55.04	17.70	14.20	113	41
Social adjustment	218.20	212.59	42.73	36.00	20.05	33.65	113	41
Family relations	140.45	145.78	54.09	64.64	17.34	13.01	113	41
Emotionality	158.65	160.05	46.42	52.63	17.31	17.42	113	41
Economic conservatism	106.92	113.33	49.80	70.75	15.09	12.75	113	41

Field of adjustment	Difference between the means	Standard error of the difference between the means	Significance ratio	Level of confidence
Morale	8.97	2.76	3.26	.001
Social adjustment	5.61	5.78	.97	----
Family relations	5.33	2.59	2.06	.05
Emotionality	1.40	3.26	.43	----
Economic conservatism	6.41	2.48	2.58	.01

* Nonathlete

** Athlete

nificance ratio on this test was not high enough to reject the null hypothesis.

In family relations, the athletes have a higher mean raw score than the nonathletes. The significance ratio on this test was high enough to reject the null hypothesis on the 5 per cent level of confidence.

The nonathletes have a higher mean raw score than the athletes in the field of emotionality; however, the significance ratio on this test was not high enough to reject the null hypothesis.

In economic conservatism, the athletes have a higher mean raw score than the nonathletes. The significance ratio on this test was great enough to reject the null hypothesis on the 1 per cent level of confidence.

Conclusion

According to measurements by the Minnesota Personality Scale, the following conclusions are indicated:

In the morale field of adjustment the data indicate that the nonathletes have a better general adjustment, a greater belief in the institutions and future possibilities of society, and a more wholesome attitude toward the legal and educational systems than the athletes. This difference is statistically reliable.

In the social adjustment field, the nonathletes average slightly higher in social maturity and gregariousness in social relations, but they excel the athletes by such a small margin that the difference is not significant.

In the family relations field of adjustment, the data indicate that the athletes have better family attitudes and home adjustment than the nonathletes. This difference is statistically reliable.

In the emotionality field of adjustment, the athletes showed a tendency toward more emotional stability than the nonathletes. However, the difference was too slight to be significant.

In the economic conservatism field of adjustment, the data indicate reliably that the athletes are more conservative on current economic affairs and industrial problems than the nonathletes.

SUMMARY

This is a comparative study of the scholastic aptitude, scholastic achievement, and personality adjustment of male athletes and male nonathletes at Kansas State College. Men were classified as athletes who were awarded intercollegiate athletic letters by the Athletic Council at Kansas State College between September, 1946, and March, 1949. The control groups were composed of nonathletes chosen in the manner described below.

The scholastic aptitude of the athletes and nonathletes was compared by means of scores on the American Council on Education Psychological Examination for College Freshmen. The groups compared were the entire list of 110 athletes and a control group of nonathletes. The control group was selected by random sampling.

The random sample scores were obtained from an alphabetical list of all those men taking the test in 1947. Every third man, excluding athletes, was selected until 249 cases were secured. The nonathletes made a slightly higher mean score, but the difference was by no means large enough to indicate a significant difference.

The results of this study agree with the results of Dr. Abraham P. Sperling, Vern W. Ruble, and Howard J. Savage in their studies of the comparison of scholastic aptitude of athletes and nonathletes. They also found that the nonathletes had a slight but probably not significantly higher scholastic aptitude. This research differs from the studies of the Carnegie Foundation for the Advancement of Teaching and Martin Kemp who found the athletes to hold a slight edge over the nonathletes in scholastic aptitude. The results of this study together with the results of the studies cited in the literature, refute the frequent statement that athletes are below average in scholastic ability.

The scholastic achievement, as measured by grade point averages, of 100 sophomore nonathletes was compared with that of 31 sophomore athletes; the same comparison was made for 100 junior nonathletes and 34 junior athletes; the process was repeated with 100 senior nonathletes and 38 senior athletes. This section of study included all men who were awarded athletic letters between September, 1948, and March, 1949, excluding transfer students who later received athletic letters from Kansas State College.

The nonathlete group was made up of men selected by random sampling. The random sample scores were secured from an alphabetical list of all male students in each class. Every third man, excluding athletes, was selected until 100 cases were secured for each class.

The data show that the athletes made the higher grade point average in both semesters of the sophomore year and in the combined fall semesters; however, the significance ratios were too small to show reliable differences. In all other comparisons the nonathletes had higher grade point averages; in these instances the significance ratios were large enough to show reliable differences only in the junior spring semester and the combined spring semester comparisons.

Summarizing the results of this part of this research, it can be said that there is little difference in scholastic achievement between the two groups. The slight but reliable differences which do appear favor the nonathletes.

The results of this study coincide with those obtained by the Harvard faculty committee, two separate studies of Howard J. Savage, and Tuttle and Beebe in their comparisons of scholastic achievement of athletes and nonathletes; they also found the nonathletes to have a slightly higher grade point average than the athletes. They differ from the results obtained by Ray Finlay and Martin Kemp, who found the athletes to hold a slight advantage in scholastic achievement.

The results of this study together with the results cited in the literature review contradict the common generalization that athletes are disinclined to study and receive low academic grades.

The mean scores of 41 athletes from the sophomore, junior, and senior classes were compared with the mean scores of 115 nonathletes from the same three classes in each of five fields of personality adjustment as measured by the Minnesota Personality Scale. The athlete group included all men who were awarded athletic letters between September, 1946, and March, 1949, who had taken the scale at Kansas State College. The nonathletes were made up of men selected by random sampling. The random sample scores were obtained from an alphabetical list of all men who took the scale in 1947. Every third man, excluding athletes, was selected until 115 cases were secured. Measurements made by this scale indicate the following conclusions:

In the morale field of adjustment, the nonathletes show a better general adjustment, a greater belief in the institutions and future possibilities of society, and a more wholesome attitude toward the legal and educational systems than the athletes. This difference is statistically reliable.

In the economic conservatism field of adjustment, the data indicate reliably that the athletes are more conservative on current economic affairs and industrial problems than the nonathletes.

In the family relations field of adjustment, the athletes have better family attitudes and home adjustment than the nonathletes. This difference is statistically reliable.

In the other two fields of adjustment measured by the Minnesota Personality Scale, social adjustment and emotionality, the significance ratio was not high enough to make the differences reliable.

A review of the literature has revealed only one objective study of personality adjustment of athletes, namely that by Dr. Abraham P. Sperling. The fields of personality adjustment measured by the Minnesota Personality Scale which was used in this study are comparable to the fields of adjustment tested by Dr. Sperling only in the measurement of liberal-conservative tendencies. Both studies found the nonathletes to be more liberal minded and the athletes more conservative. Only in the present study was the difference found to be statistically significant, however.

Since there are no other comparisons to be made with objective studies of personality adjustment, any other comparison of this study with the literature on the personality adjustment of athletes must be in the realm of expressed opinion. The opinions encountered are all expressed in general terms; but the parts of the Minnesota Personality Scale measure adjustments to limited situations. According to this research, athletes differed reliably from the nonathletes in only three of the five fields of adjustment. No general trend is established by this fact. Therefore, it becomes evident that these results are not usable to support or refute general statements about the personality superiority of athletes or nonathletes.

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BIBLIOGRAPHY

Books

E. R. Groves and P. Blanchard, Introduction to Mental Hygiene. (New York: Henry Holt and Company) 1930.

K. L. Heaton, Character Building Through Recreation, (Chicago: The University of Chicago Press) 1929.

L. Cole, Psychology of Adolescence, (New York: Farrar and Rinehart) 1936.

E. F. Lindquist, A First Course in Statistics, (New York: Houghton Mifflin Company) 1938.

F. Lloyd, Interpretations of Physical Education, (New York: A. S. Burnes and Company) 1936, Vol. I.

S. R. Slavsin, Creative Group Education, (New York: Association Press) 1938.

P. A. Witty and C. E. Skinner, et al., Mental Hygiene in Modern Education, (New York: Henry Holt and Company) 1930.

C. Basset, Mental Hygiene in the Community, (New York: The McMillan Company) 1934.

Periodicals

"Athletics and Scholarship," Harvard Graduate Magazine, 29: 588-590, June, 1921.

Carnegie Foundation for the Advancement of Teaching, Bulletin 23, 1929.

Calvin Davis and J. F. Pobanz, "Subjects Pursued by Winners of the 'M' in all Subjects at the University of Michigan," Educational Administration, 4: 222-226, April, 1918.

Martin Remp, "AComparison of the Scholastic Records of Athletes and Non-Athletes," American Physical Education Review, 30: 187-192, April, 1925.

Vern Ruble, "A Psychological Study of Athletes," American Physical Education Review, 33: 219-234, April, 1928.

Howard J. Savage, "College Athletics and Scholarship," *Carnegie Foundation for the Advancement of Teaching*, 22nd Annual Report, 1927.

A. B. Sperling, "The Relationship Between Personality Adjustment and Achievement in Physical Education Activities, "*Research* Quarterly, 13: 362-371.

Tuttle and Beebe, "A Study of the Scholastic Attainments of Letter Winners at the State University of Iowa," *Research Quarterly*, 1941.

Unpublished Works

Hay Finlay, "Comparative Academic Standings of Athletes and Non-athletes," (McGill University: typewritten thesis) 1926.

(Abstract in *Carnegie Foundation for the Advancement of Teaching*, Bulletin 23, 1929).

Manual of Directions

"Manual of Instructions," *American Council on Education Psychological Examination for College Freshmen*, 1945.

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